

AUTOMATIC POOL COVER BOX LID EDGE SUPPORT ASSEMBLY

Cross Reference to Related Application

This is a continuation-in-part of U.S. patent application serial no. 09/703,911, entitled
5 “AUTOMATIC POOL COVER BOX”, filed November 1, 2000.

BACKGROUND OF THE INVENTION

1. Field of the invention.

The present invention relates to swimming pools, and, more particularly, to an automatic
pool cover box lid edge support.

10 2. Description of the related art.

Swimming pools are commonly covered to prevent debris from entering the pool, to
preserve chemical treatments in the water and to heat the pool in the case of a solar cover. An
automatic pool cover provides convenience for a user by allowing the cover to be easily
extended over the pool during periods of non-use, and retracted during periods of use. Typically,
15 a box is placed in the decking surrounding the pool at a location opposite from the walk-in steps
(usually at the deep end of a pool). The box extends across the width of the pool, and houses an
electric motor and reel on which the cover is wound.

A problem with conventional automatic pool cover boxes is that the lid which covers the
box is typically installed without support on the edge facing the pool. If a person steps on a pool
20 cover box lid the pool cover box lid may deform and potentially damage the pool cover box lid.

What is needed in the art is an automatic pool cover box lid which is supported on the
edge to provide strength to the lid.

SUMMARY OF THE INVENTION

The present invention provides an automatic pool cover box lid edge support assembly having a lid edge support and a lid constructed from modular components which may be easily connected together on-site and adjusted relative to each other to provide an optimum installation.

5 The invention provides, in one form thereof, a pool cover box lid edge support, which includes a base and a facia connected together. The base or the facia is connectable with and provides vertical support to an edge of a pool cover box lid.

An advantage of the present invention is that the pool cover lid edge is strengthened.

10 A further advantage is the pool cover lid edge support provides an aesthetically pleasing look.

BRIEF DESCRIPTION OF THE DRAWINGS

15 The above-mentioned and other features and advantages of this invention, and the manner of attaining them, will become more apparent and the invention will be better understood by reference to the following description of an embodiment of the invention taken in conjunction with the accompanying drawings, wherein:

Fig. 1 is a perspective view of a swimming pool including an embodiment of an automatic pool cover box lid edge support of the present invention;

Fig. 2 is a partially sectioned perspective view of an embodiment of the present invention shown in Fig. 1; and

20 Fig. 3 is an end, sectional view of the automatic pool cover box lid edge support of Figs. 1 and 2.

Corresponding reference characters indicate corresponding parts throughout the several views. The exemplification set out herein illustrates one preferred embodiment of the invention,

in one form, and such exemplification is not to be construed as limiting the scope of the invention in any manner.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings, and more particularly to Fig. 1, there is shown an embodiment of swimming pool 10 with deck 16, cover 20, leading edge bar 22, coping 48 and pool cover box assembly 12 of the present invention.

Deck 16 is generally horizontal and is preferably constructed from concrete. Coping 48 connects to deck 16 in a substantially coplanar fashion along the edge of deck 16 facing the interior of swimming pool 10.

Cover 20 is attached to leading edge bar 22 which pulls cover 20 from pool cover box assembly 12, through an opening existing between pool cover box assembly 12 and a top edge of swimming pool 10, across the length of swimming pool 10. To prepare swimming pool 10 for use cover 20 retracts into pool cover box assembly 12 pulling leading edge bar 22 to the previously described opening.

Leading edge bar 22 is connected to cover 20 and provides support along the leading edge of cover 20. Each end of leading edge bar 22 is connected to at least one cable (not shown) and is slideably connected to a track in coping 48. Leading edge bar 22 is shaped in a manner to be unobtrusive and aesthetically pleasing when located at either end of swimming pool 10.

Coping 48 is connected to deck 16 and provides a track allowing leading edge bar 22 to slide therein. The general shape of the exposed portion of coping 48 is generally curved such that there are no exposed sharp corners. Coping 48 may include a provision to retain a fiber optic light along the length of coping 48 and above the level of leading edge bar 22 and cover 20. Coping 48 also includes a liner bead slot similar to liner bead slot 28 (Fig. 3) from which vinyl liner 30 is suspended.

Now additionally referring to Figs. 2 and 3, pool cover box assembly 12 includes a rear wall 34, a bottom 35, a front wall 32, a coupling 42, brackets 44, lid 14 and lid edge support 46. Pool cover box assembly 12 houses reel 18, cover 20 and a drive mechanism (not shown) which drives reel 18 and a rope and pulley system for the extension and retraction of cover 20. When
5 cover 20 is retracted from swimming pool 10, cover 20 is wrapped around reel 18 a number of times corresponding to the length of swimming pool 10.

Front wall 32, bottom 35 and rear wall 34 are arranged to form three sides of pool cover box assembly 12 adjacent and generally parallel to one end of swimming pool 10. The top edge of front wall 32 is parallel to a plane formed by deck 16 and is disposed therebelow. End cap
10 coping 26 rests on and finishes the top edge of front wall 32.

Coupling 42 has protrusions along a back side to engage the concrete of deck 16 and has an L shaped upper portion, extending from a front side, to accommodate a portion of lid 14. The top edge of coupling 42 is substantially coplanar with deck 16 and forms part of rear wall 34. Coupling 42 may be formed as an extrusion of metal or plastic.

15 Brackets 44 are positioned along and fastened to rear wall 34. Brackets 44 extend over the top of reel 18 and provide support to lid 14. Brackets 44 are vertically positioned such that the top portion of brackets 44 accommodate the thickness of lid 14. Brackets 44 may be situated such that lid 14 is substantially coplanar with deck 16 or to hold lid 14 at an angle to deck 16.

Lid 14 is composed of two substantially identical extrusions having a coupling
20 mechanism to engage the two extrusions. The rear edge of lid 14 is shaped to engage coupling 42 so that lid 14 will not slide from its intended position. The front edge of lid 14 has a C shaped channel 15 to accommodate latching projections 47 of lid edge support 46. As an alternative to the two piece construction of lid 14, it may be made of one or more than two piece construction.

According to an aspect of the present invention, lid edge support 46 has a base 43, a facia 45 and latching projections 47. Lid edge support 46 is fastened to lid 14 and is disposed above end cap coping 26 forming an opening therebetween. This opening is generally parallel with the plane of deck 16 and is such that cover 20 may be freely extended over swimming pool 10 and retracted into pool cover box assembly 12. Lid edge support 46 provides support to the front edge of lid 14 reducing the amount of deformation along the front edge of lid 14.

Base 43 is a part of lid edge support 46 which is longitudinally connected to facia 45 and base 43 provides connective support to latching projections 47.

Latching projections 47 protrude from one side of lid edge support 46 and engage channel 15, snapping into position when pressed into channel 15. Lid edge support 46 connects with channel 15 of lid 14 such that the top edge of lid edge support 46 substantially aligns with the top surface of lid 14.

Facia 45 has an upper portion and a lower portion. The upper portion of facia 45 is shaped in a convex manner and has a cross-sectional shape substantially similar to the cross-sectional shape of a portion of coping 48 to provide an aesthetically pleasing trimmed look to swimming pool 10. Facia 45 includes slot 50 which is substantially aligned with coping slot 52 when lid 14 is installed as the top member of pool cover box assembly 12. The lower portion of facia 45 is shaped to accommodate the shape of leading edge bar 22. This shape allows leading edge bar 22 to nest with the lower portion of facia 45 when cover 20 is in a retracted position.

Coping 48 is generally aligned with lid edge support 46 of pool cover box assembly 12 and both parts have similar shapes over a portion of their exposed surfaces. The similar look between coping 48 and lid edge support 46 provide a continuous trimmed look to the edge of swimming pool 10.

Slot 50 has a substantially circular cross-section and includes an inside surface with a high reflectivity. Slot 50 is configured to accommodate and retain a fiber-optic light 54.

Latching projections 47 are only one way in which lid edge support 46 may be fastened to lid 14. For example, base 43 may omit latching projections 47 entirely and mechanical fasteners such as bolts, screws and rivets may be employed to attach base 43 directly to lid 14. Lid edge support 46 may be formed using the process of extrusion and may be made of monolithic metal or plastic construction. Further, lid edge support 46 and lid 14 may be formed of a monolithic construction. Although, lid edge support 46, as depicted in Fig 3, is formed with an opening toward the interior of pool cover box assembly 12, it could also be formed as a closed chamber.

To assemble lid edge support 46 to lid 14, latching projections 47 are first oriented relative to channel 15, then lid edge support 46 and lid 14 are pressed together until latching projections 47 are secured in channel 15.

While this invention has been described as having a preferred design, the present invention can be further modified within the spirit and scope of this disclosure. This application is therefore intended to cover any variations, uses, or adaptations of the invention using its general principles. Further, this application is intended to cover such departures from the present disclosure as come within known or customary practice in the art to which this invention pertains and which fall within the limits of the appended claims.